# PATENT COOPERATION TREATY

# **PCT**

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference				
0000054447	FOR FURTHER ACTION	See Form PCT/IPEA/416		
nternational application No.	International filing date (day/mo	te (day/month/year) Priority date (day/month/year)		
PCT/EP2004/003689 07.04.2004 11.04.2003				
nternational Patent Classification (IPC) or na	tional classification and IPC			
Applicant				
BASF AKTIENGESELLSCH	<b>IAFT</b>			
1. This report is the international pre-	liminary examination report, estab	lished by this International Preliminary Examining Authority		
under Article 35 and transmitted to	the applicant according to Article			
2. This REPORT consists of a total of	6	sheets, including this cover sheet.		
3. This report is also accompanied by	ANNEXES, comprising:			
a. (sent to the applicant a	nd to the International Bureau) a to	sheets, as follows:		
sheets of the descri	ription, claims and/or drawings wh	ich have been amended and are the basis for this report and/or		
sheets containing Instructions).	rectifications authorized by this A	thority (see Rule 70.16 and Section 607 of the Administrative		
		s Authority considers contain an amendment that goes beyond		
the disclosure in the Box.	the international application as file	ed, as indicated in item 4 of Box No. I and the Supplemental		
L1	al Puragu anhi) a total of (indicate	time and number of electronic corrier(s)		
b (sent to the International	at Bureau only) a total of (indicate	type and number of electronic carrier(s))		
		, containing a sequence listing and/or tables		
Section 802 of the Admin		d in the Supplemental Box Relating to Sequence Listing (see		
4. This report contains indications rel	ating to the following items:			
Box No. I Basis of t	the report			
Box No. II Priority				
Box No. III Non-esta	blishment of opinion with regard to	o novelty, inventive step and industrial applicability		
	unity of invention			
Box No. V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
Box No. VI Certain d	locuments cited			
Box No. VII Certain defects in the international application				
Box No. VIII Certain observations on the international application				
Date of submission of the demand	Date of	completion of this report		
A design of the transfer		1.60		
Name and mailing address of the IPEA/EP		zed officer		
Faccimile No	Telepho	ne No		

Translation

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Box No. I	Basis of the report		
	d to the language, this report is based on the internation nder this item.	al application in the language in v	which it was filed, unless otherwise
	report is based on translations from the original languag h is the language of a translation furnished for the purpo		,
	international search (Rule 12.3 and 23.1(b))		
	publication of the international application (Rule 12.4)		
	international preliminary examination (Rule 55.2 and/o	or 55.3)	
receiving ( this report)	d to the elements of the international application, this r Office in response to an invitation under Article 14 are itemational application as originally filed/furnished escription:		
page	s <u>1-12</u>		as originally filed/furnished
page	s*	received by this Authority on	
page	s*	received by this Authority on	
the c	laims:		
nos,		_	as originally filed/furnished
nos.	•	as amended (togethe	r with any statement) under Article 19
nos,			11.12.2004 with letter of 30.09.2004
nos.			
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	trawings:		an ani ai na llee Glad/Gemiahad
shee			as originally filed/furnished
shee			<del></del>
shee	ts*	received by this Authority on	
a see	quence listing and/or any related table(s) - see Supplem	ental Box Relating to Sequence I	isting.
3. L The	amendments have resulted in the cancellation of:		
	the description, pages		
	the claims, nos.		
	the drawings, sheets/figs		
	the sequence listing (specify):		
	any table(s) related to sequence listing (specify):		
	s report has been established as if (some of) the amend have been considered to go beyond the disclosure as fi	lments annexed to this report and	l listed below had not been made, since
	the description, pages		
	the claims, nos.		
	the drawings, sheets/figs		
	any table(s) related to sequence listing (specify):		
* If item 4 a			
* If item 4 c	applies, some or all of those sheets may be marked "sup	perseded."	

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Box	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement						
1.	Statement						
	Novelty (N)	Claims	1-11	_ YES			
		Claims	·	– <sup>NO</sup>			
	Inventive step (IS)	Claims		_ YES			
		Claims	1-11	_ NO			
Industrial applicability (IA)		(IA) Claims	1-11	_ YES			
		Claims		110			
2.	Citations and explanation	s (Rule 70.7)					
	1.	This repo	rt makes reference to the following				
	documents:						
Ì		D1: EP-	-A-1 048 668 (HOFFMANN LA ROCHE) 2				
!		гоИ	Jember 2000 (2000-11-02)				
		D2: EP-	-A-0 995 749 (HOFFMANN LA ROCHE) 26				
		-	ril 2000 (2000-04-26)				
			-A-0 730 034 (HOFFMANN LA ROCHE) 4				
		•	ptember 1996 (1996-09-04)				
			-A-0 457 075 (BASF AG) 21 November				
			91 (1991-11-21)				
			-A-0 307 767 (HOFFMANN LA ROCHE) 22				
		Ma	rch 1989 (1989-03-22)				
	With the letter of 30 September 2004, the						
	applicant submitted a new set of claims,						
	claims 1-11, from which the originally						
	submitted claims 12-17 were deleted and in						
	which claim 1 was amended by the inclusion of						
	the subject matter of the original claim 3.						
	The requirements of PCT Article 19 have been						
		met.					
1							

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2.

### 2.1 Novelty

Claims 1-11

The subject matter of claims 1-11 differs from

- D1 (see example 1 and claim 1), D2 (see example 1 and claim 1) and D3 (see example 1) by a precipitation directly after the dissolution process without the addition of active charcoal (see method step b) in claim 1)
- D4 by method step a)
- D5 by avoiding the use of a second solvent

Claims 1-11 meet the requirements for novelty.

### 3.2 Inventive step

D1 is regarded as the closest prior art. D1 discloses a method for producing riboflavin of modification B/C in granulated form (see example 1) characterized in that

- riboflavin of modification A is dissolved in aqueous inorganic acid
- the solvent is treated with activate carbon and subsequently filtered.

Proceeding from D1, the applicant describes the problem to be solved as that of providing a method for producing riboflavin of B/C modification in granulated form with a high degree of purity and a high yield.

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The solution to this problem is provided by a method according to claim 1 characterized by precipitation directly after the dissolution process, without the addition of active charcoal (method step b).

The problem cannot, however, currently be regarded as solved, because the application contains no reference to the degree of purity or yield of the B/C riboflavin produced using the method according to the application as compared to that produced using the method in the prior art.

Proceeding from the technical teaching of D1 and D2, a person skilled in the art is not surprised to obtain riboflavin of B/C modification in granulated form, even when active charcoal is not used. Paragraphs (0017) and (0033) of D1 teach that the B/C modification is no longer converted into A. Paragraph (0014) of D2 teaches that the active charcoal serves only to filter the dissolved impurities and therefore does not contribute to forming the B/C modification. Therefore, a person skilled in the art would not be surprised to obtain the riboflavin granulate of B/C modification according to the claimed method.

The presence of a surprising effect could

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substantiate an inventive step. The data in Table 3 of the present specification, however, do not substantiate an effect that would be considered surprising, since it is not clear whether the comparative tests were designed in accordance with the closest prior art, i.e. in accordance with example 1 in D1 and D2.

The requirements for inventive step are not currently fulfilled.